

ON NEW OR LITTLE KNOWN COCCIDÆ, CHIEFLY ENGLISH (No. 2).

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PLATE II.

LECANIUM MINIMUM, *n. sp.*

♀ adult. Yellowish-brown, flat, elongate, narrowly rounded in front; surface rugosely punctured, with a strong central carina commencing just behind the black eye-spots and terminating at the caudal scales. Dermis with a large and nearly circular tessellation. Margins with equidistant hairs, more numerous near the anal cleft. Caudal scales with four or five strong, short hairs. Antennæ (fig. 1) of seven joints, of which the 3rd, 4th and 7th are the longest, and in length nearly equal; the 5th and 6th shortest; 1st and 2nd half the length of the 3rd. Rostral filaments (loop) extending just beyond insertion of posterior legs. Legs (fig. 1a) rather short; tarsi very little shorter than tibiæ. Long, 75—250 mm.; wide, 25—1 mm.

This species, which lives on *Areca* and *Abutilon*, exactly resembles very young females of *Lecanium hesperidum*, but that it is not that species I am certain, as I have kept living examples under my observation on a growing plant for about twelve months, during which time several generations were produced, but none ever exceeded the measurement given above. The species is, therefore, clearly distinct, and, from its small size, cannot be confounded with any hitherto described. I was unable to discover a male, or ova, so the female is undoubtedly viviparous. This and the other characters given place it in Signoret's first series.

LECANIUM ASSIMILE, *n. sp.*

♀ adult. Long-oval, narrowed, and somewhat produced in front; dark red-brown, or piceous, more or less shiny; slightly gibbous in the middle, deeply and irregularly foveolate at the sides, forming irregular carinæ more prominent near the margin. Antennæ (fig. 2) of seven joints, of which the 3rd and 4th are the longest and in length equal; the 1st, 2nd and 7th shorter; 5th and 6th shortest. Legs (fig. 2a) long and slender; tarsi about half the length of the tibiæ; digitules to tarsi and claws slender. Long, 4—5.25 mm.; wide, 2—3.50 mm.

Larvæ: several were restored by boiling in potash, but they offered no salient distinctive characters.

Hab.: on *Grindelia hirsuta*. Received from Mr. Alfred O. Walker, Colwyn Bay, N. W.

This species evidently belongs to Signoret's second series, and is allied to *L. mori*, Sign., and *L. persicæ* (Essai, p. 237). It is like the former in the form of the scale and antennæ; but differs in the length of the tarsi, and in not having the "grooved legs" described by Signoret. It is at once separated from the latter, which has eight joints to the antennæ. Described from five females.

On receiving the specimens I concluded they had been imported with the plant, and at once wrote Mr. Walker for information, who kindly replied as follows:—"I expect the *Grindelia hirsuta* is a native of Mexico or thereabouts, but as the plant was raised from seed in this country, and has been on my rockery for several years, I don't think its native country is of any importance." It is probable, therefore, that the species is indigenous; if not, it must have escaped from other imported plants where the seedlings were raised.

PULVINARIA PERSICÆ, n. sp.

♀ adult, immediately prior to gestation; red-brown, thickly set with small, confluent, blackish spots, and partly covered with short, white, woolly filaments, cordate, narrowed in front to an obtuse point, widely rounded behind; anal emargination shallow; anal cleft deep, but completely closed, the margins forming a narrow but well defined carina; caudal scales very small, and much porrected; surface flat-convex, rugose at the sides. After gestation the scales become tilted and so wrinkled to defy description. Antennæ (fig. 3) of eight joints, of which the 3rd and 4th are the longest, and in length nearly equal. Legs (fig. 3a) strong; coxa and trochanter each with a very long hair; tarsus about half the length of the tibia, the latter with several long hairs at apex. Digitules of the claw very stout, and unequal. Rostrum short; arising almost on a level with the insertion of the anterior legs, and is a little more than twice as long as the antennæ. Dermis with numerous large oval and round cells. Margins with many stiff spines arranged wide apart, except over the respiratory channels, where there are three much larger ones, blunt, and one of them more than twice as long as the others (fig. 3b).

Long, 5—6·25 mm.; wide, 4—5·25 mm. The old shrivelled specimens are generally as broad as long.

Allied to *P. vitis*, of authors, but differs in the form of the claws and the digitules. In *P. vitis* the latter are much more slender, and the claw is toothed (Signoret, Essai, p. 221, pl. x, fig. 1a). The antennæ also differ in not having the unusually long hairs figured by Signoret (*l. c.*) on joints 4 and 8. It is readily distinguished from *P. tremulæ*, Sign. (Essai, p. 221), in having the rostral filaments much shorter, and in the form of the antennæ.

Hab.: on peach trees under glass. Received from Mr. Gellanders, High Legh, Knutsford, Cheshire, who says they are very abundant.

SIGNORETIA LUZULÆ.

Aspidiotus? luzulæ, L. Dufour, Ann. Soc. Ent. Fr., 3 Ser. iv, p. 208, pl. 5, fig. 4.

Signoretia luzulæ, Signoret, Essai, p. 181, pl. vi, figs. 1, a, b, c.

(*Signoretia clypeata*, Targioni-Tozzetti, Cat., p. 34).

♂. Coral-red or dull red, scutellum darker; eyes and ocelli black; antennæ, legs and stylus paler; wings narrow, nearly as long again as the body, and are of a

clear white; head cordate, apex in front with several very short hairs. Antennæ (fig. 4) of ten joints, of which the 2nd is the shortest, and is furnished at the base beneath with two very short, blunt, angular spines directed backwards (fig. 4a), all the joints with many fine hairs, the last joint has three clubbed hairs at the apex. Legs slender, with fine short hairs; the tarsi a little more than one-fourth the length of the tibiæ; there are four ordinary digitules, two on the tarsi and two on the claws. Abdomen with the last three segments furnished at the sides with two tubercles, bearing short, stiff hairs, those on the last segment longest. Thorax with a few fine scattered hairs, and a row of hairs arranged wide apart on the apical margins of the abdominal segments. Long, 1 mm.

Scale of the ♂ glassy-white, something like those of the *Lecania*, but differs from them in having the margins bevelled inwardly from above, and there is no anal cleft. Long, 1.25 mm.; wide, .75 mm.

♀ at period of fecundation very elongate, sides parallel, ends equally rounded, pale, or dark orange-yellow, with two broad subdorsal lines of a rich dark carmine, thickly set with small spots of the ground-colour. Dermis with many fine longish hairs, more numerous on the margin. Antennæ as in the adult. Legs with few hairs; trochanter with one very long one; tarsi two-thirds the length of the tibiæ, the latter with one very long hair at the apex; digitules of the tarsi long and slender, those of the claw very broad throughout their length, and much dilated at their extremities. Rostrum without articulation; its entire length, including the unexpanded filaments, scarcely exceeds the length of the femur. Anal ring with six slender hairs. Long, 2.50—3.25 mm.; wide, .75—1 mm.

The description of the adult female and the sac, as given by Signoret (*l. c.*), agrees in almost every particular with my specimens, except that he shows in his figure of the antennæ the 4th and 5th joints the longest. I find in all my examples that the 3rd, 4th and 5th are the longest; the other joints and the arrangement of the hairs are as shown in his figure.

Signoret states that he examined ichneumonized individuals, which will at once account for the slight discrepancy in the relative length of the joints of the antennæ.

I find parasitized Coccids frequently have their appendages, &c., malformed. As a proof that Signoret examined parasitized examples, he remarks that "the sac is open at one end, but at this place the body of the female closes it." Now, the habit of the female after gestation is to drop from the sac, and perish outside. Of the many hundreds of examples examined, I never found other than parasitized individuals to remain in the sac; which are very rare instances, indeed, in this locality. The females cast their skins prior to gestation, and to effect the removal of the same from the anal cleft, I saw one example make free use of its anal ring, which it constantly protruded in order to remove the skin. The females are active up to the time they secrete

their sacs, and if placed upon their backs they readily right themselves by bringing their extremities together. The long white sacs are constructed in from 12 to 16 days; the cephalic portion of their bodies remains uncovered throughout the process.

The males were obtained, after many failures, by rearing them on the living plants of the *Luzula*. In their early stages they are very like the females, but the subdorsal lines are wanting. When about to pupate they generally leave the upper-sides of the leaves and seek shelter beneath them, where they construct their glassy scales, and escape in the perfect form in a few days; this takes place from the beginning of July.

The male is now described for the first time, and the species is an addition to our fauna. Abundant on a moist railway embankment on the "Field wood-rush" (*Luzula campestris*) at Ince, Cheshire, 1890—91.

PSEUDOCOCCUS SOCIUS, *n. sp.*

Pulvinaria ribesiae, Doug., ♂ only, Ent. Mo. Mag., 2nd Ser., vol. i, p. 240, fig. 3.

♀ immediately prior to fecundation. Ovate, narrowed behind, dusky yellow or greenish-yellow, covered with a white mealy powder; margins all round with white waxy projections, two at the anal extremity longest; eyes considerably behind the antennæ, shining black. Antennæ of seven joints, of which the 7th is the longest, then the 2nd, the others shorter and in length equal; all with fine short hairs, except the 7th, which has three or four long stiff ones. Legs short, thinly set with short hairs; tarsi a little shorter than the tibiæ.

Long, 1.50—2 mm.; wide, 1—1.25 mm.

♀ adult. Colour and shape as above. Antennæ (fig. 5) of nine joints, of which the 2nd and 3rd are the longest; 1st, 4th, 5th, 6th, 7th and 8th in length nearly equal, the 9th slightly longer than and these, together with the 8th, is wider than the rest, all with fine hairs. Legs (fig. 5a) long and slender, especially the posterior pair, with fine hairs, tibiæ as long again as the tarsi; coxa with one long one; claws (fig. 5b) with a strong tooth and a bulbous base; digitules to claw only; rostrum half as long again as the antennæ.

I cannot give the exact measurements, as my specimens became twisted in the preparation, but they are not less than 3 mm. long. Ovisac is composed of a thin and extremely brittle material, so much so, that I have been unable to obtain a single perfect example.

♂. Pale brown, mealy; head rounded in front; eyes and ocelli shining red-brown. Antennæ (fig. 5c) reproduced, of ten joints. Legs thinly set with short hairs; tarsi a little more than one-third the length of the tibiæ; wings white, reaching beyond abdomen; last abdominal segment with two long and two short white filaments, the latter not reaching beyond the closed wings. Long, 1.25 mm.

Sac of the ♂ long-oval, convex, composed of a thick, white, cottony substance.

Long, 2 mm.

Hab.: on black currant, in company with *Pulvinaria ribesiae*, Sign., at Wakefield, Yorks. Received from Mr. Geo. Parkin.

I discovered the male sacs on some black currant twigs infested with the females of *Pulvinaria ribesiae*, and as the males of this latter were unknown, I at once concluded that they belonged to this species; hence the reason for Mr. Douglas having described them as such (*l. c.*). On receiving a second batch of infested shoots I was surprised to find, in addition to numerous specimens of *P. ribesiae*, male and female specimens of the *Pseudococcus* here described; these I had the pleasure of seeing paired, which at once decided as to which genus the male belonged.

Before the males emerge they burst off a small portion of the sac at the anal extremity, after this the long filaments and the wings protrude before they finally escape. The first male hatched on the 7th of April, pairing taking place almost immediately after. The time which the insects under observation remained together varied from 10 to 35 minutes. Re-pairing takes place, and in one instance a single male fertilized two females.

This species is a near ally of *Ps. mespili*, Sign. (Essai, p. 367), but differs in not having the last joint of the antennæ as long again as the preceding one, and in being of a greenish-yellow instead of a reddish colour, as stated by Signoret.

RIPERSIA PULVERARIA, *n. sp.*

♀ adult. Pale pink, very elongate, distinctly segmented; dermis with a few very fine spines and small spinnerets. Antennæ (figs. 7 and 7a) of six, sometimes seven, joints, in both the last joint is the longest; rostrum short, the loop extending to anterior legs; the extended filaments do not reach beyond intermediate legs. Legs (fig. 7b) short, with fine hairs; tarsi about half the length of the tibiæ; claws fine, with two extremely fine digitules; anal ring large, with six rather long stiff hairs; anal lobes obsolete. The female covers herself and eggs with a fine white powder, which is of such a dry nature, that on disturbing the female it almost entirely disappears from her body, some, however, remains on the food-plant.

Long, 1.50—2.25 mm.; wide, .50—1 mm.

Larva active, pale yellow, elongate-oval. Antennæ (fig. 7c) of six joints, of which the 6th is the longest, and equal in length to the first four; joints 1 to 5 in length nearly equal, all with fine short hairs; loop of rostrum reaching to intermediate legs. Legs short, with fine hairs; anal ring with six small hairs; anal lobes normal, each with a long hair.

Male unknown in any stage.

Hab.: on *Agrostis vulgaris*, at Sandiway, Cheshire, August, 1891.

This species inhabits the basal portions of the stems of the above grass, and the insects locate themselves between the stem and the leaf

sheath. The plants containing the insects did not present any external signs, such as swellings or decayed leaves; and the insects could only be found by pulling the plants asunder. Although so perfectly concealed, they were yet very badly infested with a Dipterous larva, so much so that I was unable to find but very few unparasitized individuals. Nearly all the specimens found occurred in isolated plants growing in warm, dry situations.

It is like *R. corynepthori*, Sign. (Essai, p. 369, pl. xvii, figs. 1 & 1a), in not constructing an ovisac, or having waxy appendages to its body. It differs, however, in the structure of the antennæ, form and colour. It cannot be confounded with any species hitherto described; its curious habitat is quite unique.

RIPERSIA TOMLINII, n. sp.

♀ adult. Dull orange-yellow, elongate-oval, slightly narrowed in front, convex above and below; this applies to the restored specimens only; the specimens when received were still living, but much shrivelled. Antennæ (fig. 6) of seven joints, of which the 3rd is the longest; the 2nd, 5th and 7th shorter; 4th and 6th shortest and equal; all with rather long hairs, basal joint with a very short spine; rostrum biarticulate, with equidistant hairs at apex; rostral filaments extending very little beyond insertion of anterior legs. Legs (fig. 6a) short, with many fine short hairs; coxa and trochanter each with a longer one; tibiæ half as long again as the tarsi, and furnished at the apex with two spines; tarsi without dilated digitules; claw with two slender digitules; anal ring with six long thick hairs, anal lobes nearly obsolete, each with one long and one short hair; extending inwards on the ventral surface are three or four short spines. Eyes (fig. 6b) in the form of a truncated cone.
Long, 2—3 mm.; wide, 1.25—2 mm.

Sac of the ♀ globose or ovate, composed of close, white, waxy material, very compact on the inside; one specimen is almost glassy, and much thinner than the others.

Elongate forms, 1.50—3 mm. long; wide, 1—2 mm.

Globular forms, about 3 mm. in diameter.

Larva pale orange-yellow, almost covered with meal, very elongate. Antennæ (fig. 6c) of six joints, of which the 6th is longer than the 1st and 2nd together; 3rd, 4th and 5th shortest and equal; all with short hairs; rostrum biarticulate, and furnished with hairs as in the female; rostral filaments extending beyond insertion of intermediate legs. Legs with fine hairs; two fine digitules to claw only; anal ring of six long hairs; anal lobes normal, and furnished with hairs as in the adult.

Ova pale yellow at first, become darker immediately prior to hatching.

Male unknown.

Hab.: on grass roots in ants' nests, Moulin Huet, Guernsey. September, 1891.

In every respect this species agrees with the genus *Ripersia*, excepting as to the number of joints to the antennæ, which should be six. Possibly the last joint is a "false joint;" it certainly has the

articulation very faint, and looks like a fused joint. Maskell states (Trans. Roy. Soc. S. Australia, 1888, p. 106) that *R. leptospermi*, Mask., has a false joint in the antennæ, so that I feel justified in placing this in the genus.

Quite recently Mr. Maskell has furnished me with specimens, and photographs of his *R. formicicola*, MS., which he has found inhabiting ants' nests in New Zealand, but this is a much smaller species, and differs in many important points, so far as I am able to judge from the specimens and photographs. The antennæ, curious eyes, and the sac are the distinctive characters in this species.

Received from Miss Tomlin, of Chester, who found a few specimens while hunting for *Coleoptera* in Guernsey. To her I have the honour of dedicating the species.

RIPERSIA FRAXINI, Newstead.

Eriococcus fraxini, Newstead, Ent. Mo. Mag., 2nd Ser., vol. ii, p. 165.

Mr. Maskell has kindly examined specimens of this species, and has written to me calling attention to the error on my part, and a further study has convinced me that the species described (*l. c.*) is undoubtedly referable to the genus *Ripersia*.

EXPLANATION OF PLATE II.

- Lecanium minimum*, ♀, fig. 1, antenna; 1a, leg.
 ,, *assimile*, ♀, fig. 2, antenna; 2a, leg.
Pulvinaria persicæ, ♀, fig. 3, antenna; 3a, leg (part only).
Signoretia luzulæ, ♂, fig. 4, antenna; 4a, ditto, first four joints.
Pseudococcus socius, ♀, fig. 5, antenna; 5a, leg; 5b, extremity of tarsus with claw.
 ♂, fig. 5c, antenna (reproduced).
Ripersia Tomlinii, ♀, fig. 6, antenna; 6a, leg; 6b, eye; 6c, antenna of larva.
 ,, *pulveraria*, ♀, figs. 7 and 7a, antenna; 7b, leg; 7c, antenna of larva.

ERRATA.

Page 144, line 16 from bottom, for "and these," read "these, and"

On Plate II, for "6a," read "5a."

Chester: January, 1892.

DEMAS CORYLLI.

BY MAJOR JOHN N. STILL, F.E.S.

Why the English name (the nut-tree Tussock) is given to this moth I cannot understand, for out of the many dozens of the larvæ that I have beaten out, I have never got one from the nut, the greater proportion were from beech, although the oak has yielded a few.